

ADOPTED BY THE RIO NUEVO
MULTIPURPOSE FACILITIES DISTRICT
BOARD OF DIRECTORS
January 11, 2006

RESOLUTION NO. 2006-02

RESOLUTION APPROVING FUNDING FOR A FEASIBILITY STUDY FOR
LOWERING I-10 IN THE VICINITY OF RIO NUEVO

WHEREAS, the Arizona Department of Transportation plans to reconstruct and widen freeway I-10 through downtown Tucson; and

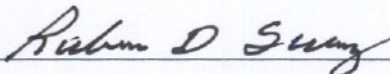
WHEREAS, the City Manager and Tucson Department of Transportation, at the request of elected officials and in the interest of the community, wish to examine the cost and feasibility of lowering I-10 in the vicinity of Rio Nuevo to lessen the visual barrier created by the freeway, reduce noise levels in the surrounding area and augment redevelopment objectives; and

WHEREAS, the Tucson Department of Transportation has received a proposal from HDR to identify the issues that will have to be addressed for the lowering of I-10 to go forward, determine if any of these issues is likely to be insurmountable technically, and determine a preliminary estimate of the cost increase over ADOT's currently planned widening project; and therefore

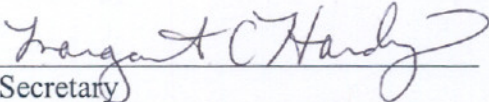
BE IT RESOLVED by the Board of Directors of the Rio Nuevo Multipurpose Facilities District that funding in the amount of \$199,746 is hereby approved for the purpose of studying the cost and feasibility of lowering I-10 in the vicinity of Rio Nuevo.

PASSED, ADOPTED AND APPROVED this 11th day of January, 2006.

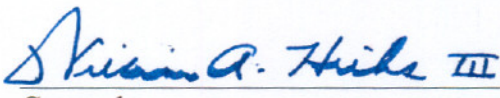
APPROVED:


Chair
Rio Nuevo Multipurpose Facilities
District Board

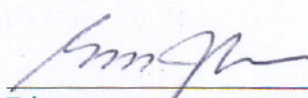
ATTEST:


Secretary
Rio Nuevo Multipurpose Facilities
District Board

APPROVED AS TO FORM:


Counsel
Rio Nuevo Multipurpose Facilities
District Board

REVIEWED BY:


Director
Rio Nuevo Multipurpose Facilities
District



January 4, 2006

CITY OF TUCSON
Department of Transportation
255 West Alameda, 6th Floor
Tucson, Arizona 85701

RE: Cost Proposal
I-10 Deck Park
Preliminary Feasibility Evaluation
HDR No. 35561

Attn: Brooks Keenan, P.E.

Please find attached our proposal revised in response to our discussions and correspondence earlier today. If you have any further questions or concerns, please contact me at 584-3644.

Sincerely,

HDR ENGINEERING, INC.

Michael T. Johnson, P.E., R.L.S.
Vice President

MTJ/cgs

Attachments

FEE ESTIMATE SUMMARY SHEET

I-10 Deck Park Preliminary Engineering Study

HDR No.35561

January 4, 2006

HDR FEE CALCULATION--

	Direct Labor Hours	Weighted Average Rates	Direct Labor Cost
Project Manager/Principal:	195	60.65	11,827
Project Engineer:	745	53.30	39,709
Design Engineer:	235	32.75	7,696
Drafter/Technician:	135	25.50	3,443
Administrative:	75	16.75	1,256
Total Direct Labor:			63,930
Overhead Rate:			168.29%
Overhead Amount:			107,588
Profit Rate:			10.0%
Profit Amount:			17,152
Direct Cost Rate:			5.0% (of Direct Labor + Overhead)
Direct Costs:			8,576
HDR Net Fee:			\$197,246
NCS Consultants:			2,500
Total Fee:			<u>\$199,746</u>

FEE ESTIMATE SUMMARY SHEET
I-10 Deck Park Preliminary Engineering Study
HDR No.35561
January 4, 2006

Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drfttr Tech	Clrc	Direct Labor	Over- Head	Direct Cost	Sub- Cnsltnt	Profit	Cost of Task
Direct Labor Rates:	\$60.65	\$53.30	\$32.75	\$25.50	\$16.75						
A. GEOMETRICS	15	100	60	35	5	\$9,181	\$15,451	\$1,232	--	\$2,463	\$28,326
B. STRUCTURES	5	110	50	40	5	\$8,908	\$14,990	\$1,195	--	\$2,390	\$27,483
C. DRAINAGE	10	20	--	--	5	\$1,756	\$2,956	\$236	--	\$471	\$5,419
D. UTILITIES	5	35	25	--	5	\$3,071	\$5,169	\$412	--	\$824	\$9,476
E. CONSTRUCTION SEQUENCING & TRAFFIC CONTROL	30	100	50	40	5	\$9,891	\$16,645	\$1,327	--	\$2,654	\$30,516
F. TRAFFIC	5	50	--	--	5	\$3,052	\$5,136	\$409	--	\$819	\$9,416
G. ENVIRONMENTAL CONSIDERATIONS	10	80	--	--	5	\$4,954	\$8,338	\$665	--	\$1,329	\$15,286
H. COVERED ROADWAY CONSIDERATIONS	20	80	20	--	--	\$6,132	\$10,320	\$823	--	\$1,645	\$18,919
I. COST ESTIMATE	15	30	--	--	--	\$2,509	\$4,222	\$337	--	\$673	\$7,740
J. STUDY REPORT	35	60	20	20	20	\$6,821	\$11,479	\$915	--	\$1,830	\$21,044
K. QUALITY CONTROL	10	10	--	--	--	\$1,140	\$1,918	\$153	--	\$306	\$3,516
L. MEETINGS	30	70	10	--	10	\$6,046	\$10,174	\$811	\$2,500	\$1,622	\$21,152
M. PROJECT MANAGEMENT	5	--	--	--	10	\$471	\$792	\$63	--	\$126	\$1,452
	195	745	235	135	75	\$63,930	\$107,588	\$8,576	\$2,500	\$17,152	\$199,746

TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
HDR No.35561
January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drft Tech	Clrc
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OVERVIEW

This study examines the cost and feasibility of lowering I-10 in the vicinity of Rio Nuevo. ADOT recently completed designing improvements for the I-10 mainline that leave it elevated through the downtown area. The alternative considered here would lessen the visual barrier created by the freeway embankment as well as reduce traffic noise levels in the surrounding area. A "deck park" approximately 800' in length would be constructed across the freeway to connect the portions of Rio Nuevo lying either side of I-10. The deck would be located as far northward as clearance over the ramps extending south from Congress permit. The horizontal configuration of the mainline, ramps, and frontage roads of ADOT's current design would be retained to avoid changing traffic capacity and operation.

The "deck park" proposal differs from the lowering approach documented in the report "Cost Analysis of Depressing I-10 through the Rio Nuevo Project Site", January 4, 2002. The earlier proposal simply lowered the mainline while leaving the frontage roads at grade. Connectivity between the east and west sides of Rio Nuevo was limited to vehicular/pedestrian bridges at Congress Street, Clark Street, and Simpson Street/Mission Lane, and a pedestrian bridge between Congress and Clark. That study determined the increase in cost and identified environmental and other issues that would need to be addressed.

The current proposal would also lower the frontage roads to allow the deck park to span them as well, introducing new issues such as access to local streets and adjacent property, and complicating maintenance of traffic during construction. Covering the freeway also requires consideration of ventilation and fire suppression, operation of the covered roadway including traffic handling during maintenance activities, and handling hazardous cargo.

The purpose of this study is to determine the cost increase associated with the deck park proposal and to identify the added impacts and issues and plausible means of dealing with them.

STUDY APPROACH

Limitations on time and resources preclude fully investigating all aspects of viability of the deck park proposal. The emphasis here is to identify the issues that will have to be addressed for this proposal to go forward, determine if any of these issues is likely to be insurmountable technically, and determine a preliminary estimate of the cost increase over ADOT's currently planned approach

PRELIMINARY ENGINEERING STUDY FEE PROPOSAL

This cost proposal identifies the tasks we believe are needed to accomplish the goals of the study. The associated hours by various employee classification are also shown to indicate the anticipated level of effort as well as to compute the cost of the work. Results from the 2002 study will be used where applicable.

TASK DESCRIPTIONS AND DIRECT LABOR ESTIMATES

The following describes the tasks being proposed here and provides estimates of labor requirements for each.

A. GEOMETRICS

A1. Adjust Mainline Profile

Review the mainline profile proposed in the 2002 study in light of current ADOT geometric standards. Adjust the grade to the current standard of no less than 0.4% and not exceed 3.0%.

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TASK DESCRIPTIONS AND COST ESTIMATE

I-10 Deck Park Preliminary Engineering Study

HDR No.35561

January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drfr Tech	Clrc
A2. Frontage Road and Ramp Profiles Develop preliminary vertical geometrics for the ramps and frontage roads that would be altered under the deck park proposal. The profiles of the ramps south from Congress Street will be adjusted to allow shifting the deck as far northward as possible. Interstate highway standards require a minimum vertical clearance of 16'-6" in all cases. InRoads computer-aided engineering design and drafting software will be used to expedite the development of the geometrics and to readily establish retaining wall requirements, construction limits, need for additional right-of-way, earthwork quantities, and plotted cross-sections. The location and extent to which existing frontage roads must be reconstructed will be identified in this process.	5	60	20	--	--
A3. Quantity Takeoff Approximate earthwork volumes, length and height of retaining walls, and pavement quantities for the deck park alternative will be determined from the proposed geometrics.	--	20	40	35	--
A4. Documentation Prepare a narrative discussion of issues and other aspects of geometrics associated with the deck park proposal for inclusion in the report.	5	10	--	--	5
Total for A. GEOMETRICS:	15	100	60	35	5

B. STRUCTURES

B1. Cross Road Structures Update the structural information developed in the 2002 study of the open lowered alternative for vehicular/pedestrian crossings at Clark and Simpson Streets to account for the longer span needed to cross the lowered frontage roads in the deck park alternative. The information for the Congress Street crossing and the pedestrian bridge between Congress and Clark will be used here except that the cost estimate will be updated to reflect current unit prices as described later. The use of pre-cast concrete girder bridge structures in lieu of cast-in-place as recommended in the 2002 study will be investigated as a possible means of reducing the time of construction, in particular the time that Congress is closed to traffic.	--	20	--	--	--
B2. Deck Structure Determine approximate dimensions, depth of structures, probable foundation types, and other major characteristics of deck structure. Determine with the City and ADOT the live and dead loads to be applied.	--	60	20	20	--

TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
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January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drft Tech	Clrc
<i>B3. Retaining Walls</i> Use InRoads to develop elevation drawings for retaining walls. Determine suitable wall types (cantilever vs. soil nail or mechanically stabilized earth) based on wall height and cost information from ADOT's current plan.	--	10	20	20	--
<i>B4. Cost</i> Determine approximate quantities for the bridges, deck, and retaining walls, and estimate their cost using current unit prices.	--	10	10	--	--
<i>B5. Documentation</i> Prepare a narrative discussion of the structural considerations for inclusion in the study report.	5	10	--	--	5
Total for B. STRUCTURES	5	110	50	40	5
C. DRAINAGE					
<i>C1. Cost</i> The drainage approaches recommended in the 2002 study will be used here. Update the cost estimate for the drainage approaches recommended in the 2002 study to reflect current unit prices.	5	10	--	--	--
<i>C2. Documentation</i> Prepare a narrative discussion of the drainage aspects of this study. This will to a large extent repeat the applicable sections from the 2002 study.	5	10	--	--	5
Total for C. DRAINAGE:	10	20	--	--	5
D. UTILITIES					
<i>D1. Determine Utility Impacts</i> Review ADOT's current I-10 improvement plan to determine the impact of both alternatives on water and sewer facilities that would be relocated as part of the project, and gas, electric, telephone, and similar utilities which would be relocated by the respective owners.	--	10	10	--	--
<i>D2. Utility Approach</i> Determine plausible measures for clearing utility impacts.	--	10	10	--	--
<i>D3. Cost Estimate</i> Determine approximate quantities and costs for relocation of water and sewer facilities.	--	5	5	--	--

TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
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Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drfr Tech	Clrc
<i>D4. Documentation</i>					
Prepare a narrative discussion of utility impacts and approaches for dealing with them.	5	10	--	--	5
Total for D. UTILITIES:	5	35	25	--	5
E. CONSTRUCTION SEQUENCING & TRAFFIC CONTROL					
<i>E1. Construction Sequencing and Maintenance of Traffic Plan</i>	20	80	40	40	--
Develop a plan for sequencing construction and maintaining traffic during construction for the deck park proposal. Issues to be considered include how to stage removing the existing embankment and excavating the lowered freeway section, movement of material in and out of the construction site across detoured mainline traffic, the need and duration for closing the Congress Street interchange, maintaining access to local streets and adjacent property, and providing for emergency services. Plausible approaches will be developed, and a selected approach derived in consultation with ADOT and the City of Tucson.					
<i>E2. Cost Estimate</i>	5	10	10	--	--
A cost estimate for the selected approach will be determined.					
<i>E3. Documentation</i>	5	10	--	--	5
A narrative detailing the analysis and considerations will be prepared for inclusion in the study report.					
Total for E. CONSTRUCTION SEQUENCING & TRAFFIC CONTROL:	30	100	50	40	5
F. TRAFFIC					
<i>F1. Local Access and Traffic Operation During Construction</i>	--	40	--	--	--
The deck park proposal will alter local traffic movement and access in the area during construction. Meet with City of Tucson and ADOT traffic engineering staff to discuss where traffic would likely go and what the impact on freeway and local traffic would likely be during and subsequent to construction.					
<i>F2. Documentation</i>	5	10	--	--	5
Prepare a narrative detailing the traffic considerations described above.					
Total for F. TRAFFIC:	5	50	--	--	5

TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
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January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drfr Tech	Clrc
G. ENVIRONMENTAL CONSIDERATIONS					
G1. Additional Environmental Impacts The likelihood and nature of impacts associated with the deck park proposal will be identified through discussions with knowledgeable staff of ADOT, FHWA, City of Tucson, and HDR. Impacts expected to be of primary concern are archaeological, hazardous materials, right-of-way acquisition and other property impacts, and economic impact.	5	20	--	--	--
G2. Review Existing Work Review the environmental documents prepared by ADOT for I-10 in the vicinity of the proposed lowering. Prepare a summary of known or suspected areas of contamination and archaeological sites identified in ADOT's records research and field investigations.	--	20	--	--	--
G3. Environmental Documentation The probable need for and type of environmental process will also be derived in these discussions. The cost and time required to complete any documentation will also be estimated.	--	20	--	--	--
G4. Cost Estimate The cost and time required for environmental clearance will be estimated based on the expertise of City of Tucson, ADOT, and HDR environmental staff.	--	10	--	--	--
G5. Documentation A narrative detailing the anticipated requirements, costs, and delays will be prepared for inclusion in the study report. Assumptions made in this determination will be clearly stated.	5	10	--	--	5
Total for G. ENVIRONMENTAL CONSIDERATIONS :	10	80	--	--	5

H. COVERED ROADWAY CONSIDERATIONS

H1. Ventilation and Fire Control Determine from discussion with knowledgeable HDR, ADOT, Tucson Fire Department, and FHWA staff what requirements are likely to apply to the covered roadway. Determine if added mainline width will be necessary to provide emergency access within the covered portion. The approximate configuration and cost of ventilation and fire suppression systems will be derived from the information provided by Palmer Engineering for the 2002 study, scaled to fit this project and adjusted for inflation.	5	10	--	--	--
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TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
HDR No.35561
January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drft Tech	Clrc
<i>H2. Hazardous Cargo</i> Identify issues and approaches for dealing with the transport of hazardous cargo within covered roadways. This issue will be addressed through discussion with FHWA, ADOT, Tucson Fire Department, and HDR staff with covered freeway experience.	5	10	--	--	--
<i>H3. Operation and Maintenance</i> Determine probable cost and operational issues associated with maintenance of covered freeways through discussion with HDR staff, and with ADOT staff familiar with the I- 10 Deck Park tunnel in Phoenix. Identify design measures that could reduce the cost of maintenance.	5	20	20	--	--
<i>H4. Acceptable Use of Deck</i> Determine through discussion with ADOT and FHWA viable uses for a deck spanning the freeway, and any permitting and other requirements that would apply.	--	10	--	--	--
<i>H5. Signal, Signing, and Illumination Requirements</i> Determine, also through discussion with HDR specialists, ADOT and FHWA signing, illumination, and signalization needs in conjunction with the covered roadway including variable message signing to provide direction in the event of emergency conditions in the covered roadway.	--	10	--	--	--
<i>H6. Cost Estimate</i> Based on the information developed above, determine the initial and operational costs associated with the deck park proposal.	--	10	--	--	--
<i>H7. Documentation</i> Prepare a narrative detailing the results of this work for inclusion	5	10	--	--	--
Total for H. COVERED ROADWAY CONSIDERATIONS:	20	80	20	--	--

TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
HDR No.35561
January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drfrtr Tech	Clrc
I. COST ESTIMATE					
<i>I1. Base Condition</i> Utilize the applicable parts of ADOT's current cost estimates for I-10, Congress Street to 29th and I-10, Grant Road to St. Mary's Road to serve as the baseline cost.	5	10	--	--	--
<i>I2. Deck Park Proposal</i> Based on the work described above, determine the approximate cost of the deck park proposal. Include costs for planning and design as a percent of construction cost. Include also a contingency for items not specifically evaluated and unknown conditions that might arise. Determine the difference in the baseline cost and the cost of the deck park proposal.	10	20	--	--	--
Total for I. COST ESTIMATE :	15	30	--	--	--
J. STUDY REPORT					
<i>J1. Draft Report</i> Prepare a draft report detailing the results of the Preliminary Engineering study and provide to the City of Tucson, ADOT, FHWA and other interested agencies for review and comment. Include an executive summary and references. Anticipated table of contents is as follows: Executive Summary 1. Introduction 2. Roadway Geometrics 3. Structures 4. Drainage 5. Utility Impacts 6. Environmental Impacts and Processing 7. Construction Sequencing and Traffic Control 8. Cost 9. Conclusion 10. References	20	20	--	--	10
<i>J2. Final Report</i> Finalize the study report based on review comments received from the City of Tucson, ADOT and FHWA.	10	20	--	--	10
<i>J3. Graphics</i> Prepare profiles, cross-sections, plan views, and other graphic aids to help illustrate the deck park proposal.	5	20	20	20	--
Total for J. STUDY REPORT:	35	60	20	20	20

TASK DESCRIPTIONS AND COST ESTIMATE
I-10 Deck Park Preliminary Engineering Study
HDR No.35561
January 4, 2006

Task Description	Proj Mngr	Senior Engr/ Plnr	Design Engr	Drfrtr Tech	Circ
K. QUALITY CONTROL					
<i>K1. QA/QC Reviews</i> Perform oversight and detailed quality review of study elements including study report.	10	10	--	--	--
Total for K. QUALITY CONTROL:	10	10	--	--	--
L. MEETINGS					
<i>L1. Scoping Meetings</i> Prepare for and attend scoping meetings with City and ADOT staff to formulate the alternatives to investigate and alternatives to consider. Provide initial design and analysis in support of this effort. Contract with NCS Consultants to attend the scoping meeting and to provide additional geotechnical input as needed during this study. (\$2,500 added for this.)	10	20	--	--	--
<i>L2. Key Informational Meeting</i> Prepare for and attend an informational meeting involving City of Tucson, ADOT, and FHWA. The purpose of this meeting will be to acquaint all parties with the freeway lowering proposals, and to discuss the various issues and requirements that will be involved. Much of the analysis discussed above will come from this meeting and from follow-up interaction with the applicable attendees.	10	40	10	--	5
<i>L3. Progress Meetings</i> Prepare for and attend progress meetings as needed to discuss issues and coordinate the various elements of the work.	10	10	--	--	5
Total for L. MEETINGS:	30	70	10	--	10
M. PROJECT MANAGEMENT					
<i>M1. Administration</i> Prepare project schedule, progress reports, and invoices.	5	--	--	--	10
Total for M. PROJECT MANAGEMENT:	5	--	--	--	10
Total for Project:	195	745	235	135	75

Jan 1, 2006 Direct Labor Adjustment: 4.0%

	Current Hourly Rate	Prcnt of Hours	Weighted Avg Rate	Adjusted for Raises	Use
<u>Project Manager</u>					
M. H. Bertram:	\$55.29	75%			
F. Moghimi	67.31	25%	58.30	60.63	\$60.65
<u>Senior Engr/Planner</u>					
M. J. Barton:	\$48.08	20%			
T. W. Buell:	42.70	20%			
T. L. Bainbridge:	44.50	5%			
S. H. Stapp:	50.49	10%			
JD Taylor	55.00	25%			
M. T. Johnson:	62.50	10%			
R. D. Brittain:	62.00	10%	51.63	53.70	\$53.30
		100%			
<u>Design Engr</u>					
M. J. Davis:	26.45	50%			
R. M. Warner:	36.50	50%	31.48	32.73	\$32.75
<u>Drfrtr/Tech</u>					
J. C. Burd:	\$21.50	25%			
T. J. Celaya:	31.90	25%			
E. R. McGehee:	22.00	25%			
D.J. Pearson:	22.75	25%	24.54	25.52	\$25.50
<u>Administrative</u>					
C. G. Strebing:	\$13.10	75%			
R.L. Quinlin:	25.00	25%	16.08	16.72	\$16.75